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CALENDAR SPRAYING WITH LIME-SULPHUR FOR PEST CONTROL ON CITRUS TREES IN FLORIDA

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For several years there has been a movement in Florida to spray at regular intervals throughout the year according to the calendar, with little or no reference to the abundance or life histories of the pests present. Since such a plan usually requires more frequent applications than would be necessary if the time to spray were determined by inspection; the cost is considerable, but at the same time the results have frequently been very satisfactory, especially if infestation is not heavy.

With the idea of adapting calendar spraying to some extent to the seasonal development and life histories of the pests, it is believed that a few suggestions will help citrus growers in obtaining bright fruit.

Although temperature and rainfall cause seasonal variations in pest abundance, many years' records and observations indicate that at certain definite dates sprays can be applied with maximum efficiency.

MARCH 25 TO APRIL 4

Sprays applied at this period would be very effective for the control of the common citrus whitefly, purple scale, rust mite, and red spider. In all probability they would have some value in the control of thrips and aphids if nicotine compounds were added. The cloudy-winged whitefly is later in emerging.

The citrus whitefly adults emerge in the greatest numbers during the first part of March and deposit their eggs. By the last of March the eggs have hatched and the crawlers and first stages of larvae are present in the greatest abundance. Sulphur spraying during the 10-day period March 25 to April 4 will effect almost complete mortality. Sulphur sprays applied after the first few days in April have little or no effect in controlling the common citrus whitefly. Good control of the cloudy-winged whitefly has been obtained at Lake Alfred as late as April 10.

This is the period also when the most abundant spring hatch of the purple scale usually takes place and the crawlers, therefore, are present in the greatest abundance. This is also the time of the year when red spiders are more likely to be present and, as is well known, they are easily controlled by sulphur sprays. This period is perhaps the most important in the year for the control of rust mites on grapefruit in the southern part of the State. In experiments conducted years ago, spraying after the middle of April did not produce satisfactory results for rust mite control.

This application must be at least 1 gallon of lime-sulphur solution to 50 gallons of water. It has also been found that the control of whiteflies and scale insects will be much more complete and thorough if a good spreader, such as the casein-lime mixture, is used. This will spread the lime-sulphur in a film over the leaves and will not leave areas without sulphur on them. This spraying must be done very thoroughly just as a scale or aphid spray would be made. The leaves must be completely wet on both upper and lower surfaces.

JUNE 25 TO JULY 5

During this period the maximum hatching of the purple scale for the second generation is taking place and therefore the crawlers and young stages are present in greater numbers than immediately before and after this period. This is also the time when adults of the citrus whitefly of the second generation have largely disappeared and many crawlers are present. As rust mites also often reach the period of maximum abundance at this time, spraying with sulphur sprays will now produce the maximum effect in killing them.

In case spraying is done late in March, a careful watch should be kept for rust mites during late May and June. Great care should be taken to prevent them from russetting the fruit before July. Much experimenting indicates that it is reasonably certain that the fruit from trees receiving a saisfactory spraying late in March is not in much danger of russetting before the spraying is given late in June.

SEPTEMBER 25 TO OCTOBER 10

At this time of the year the common citrus whitefly is in the pupal stage and therefore spraying with sulphur sprays would have little or no effect on them. But good control of the cloudy-winged whitefly has been obtained at this period in the central and southern parts of the State. The younger stages of the purple scale are now present in the greatest abundance, and rust mites may have become abundant, although this is not usually the case. At any rate, sulphur sprays applied at this time will control all rust mites, red spiders, and the young of the purple scale.

If the winter is cold, probably no other spraying will be needed, but if it is mild, another spraying may have to be given late in December or early in January for rust mites.

NON-STOP SPRAYING

Owing to the lack of thoroughness, when the non-stop method of spraying is practiced, more frequent application for rust mite control will be required than when thorough spraying is done. The non-stop system has been successful for the control of rust mites since a large percentage of the mites present are killed by the sulphur fumes and not by actual contact with the spray. Where the non-stop method is used for rust mite control it is useless to add iron sulfate or casein-lime spreader to the solution. This system of non-stop spraying is not satisfactory for the control of whiteflies or scale insects.

SUMMARY

Sprays, when applied on definite calendar dates, usually will prove effective for pest control on citrus. These dates, with some variation, are as follows:

March 25 to April 4
June 25 to July 5
September 25 to October 10

When large acreages are involved, time should be available so that most of the spraying can be done during these periods.